Bayou Sorrel Lock, Louisiana

(formerly IWW Locks, Louisiana)

Draft Feasibility Report

Environmental Impact Statement

U.S. Army Corps of Engineers
New Orleans District
New Orleans, Louisiana

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DRAFT ENVIRONMENTAL IMPACT STATEMENT
BAYOU SORREL LOCK, LOUISIANA

Lead Agency: US Army Corps of Engineers

ABSTRACT: The Bayou Sorrel lock is located in Iberville Parish, Louisiana, on the Gulf Intracoastal Waterway (GIWW), Morgan City to Port Allen Alternate Route. The lock allows navigation traffic to pass through the East Atchafalaya Basin Protection Levee (EABPL) that separates the Atchafalaya Basin Floodway from protected lands between the floodway and the Mississippi River. Analyses of the locks on the GIWW system have shown that navigation delays are highest at the Bayou Sorrel lock, due mainly to its inadequate size. Another deficiency of the lock is its inability to withstand a project flood on the Atchafalaya Basin, Louisiana, project. A project flood is the greatest flood having a reasonable probability of occurrence. Since the lock was constructed, the Atchafalaya Basin, Louisiana, project flood flow-line has been raised for the Atchafalaya Basin Floodway. Consequently, the lock would be overtopped during a project flood.

Alternatives investigated for alleviating problems at Bayou Sorrel include a float-in floodgate to flood proof the existing lock and replacement locks of various dimensions. Alternative sites for a new lock were considered, but were not investigated in detail. The potential alignments for a replacement lock are very restricted by the location of connecting waterways, residential areas, and the alignment of the EABPL. The only area investigated in detail for a new lock is immediately to the west and north of the existing lock, between the existing lock and the EABPL. Other possible sites for a new lock would require extensive realignment of channels and significant losses of fish and wildlife habitats.

Alternatives subjected to detailed engineering and economic analyses include two different lock sizes: a 1,200-foot long by 75-foot wide, by 15-foot deep lock and a 1,200-foot long by 110-foot wide, by 15-foot deep lock. All lock designs included the use of sector gates. Three construction variations were evaluated for each size lock: concrete chamber, earthen chamber, and earthen chamber with drains to lessen the construction duration. Also evaluated was a float-in floodgate that would be necessary for flood control if a new lock were not constructed for navigation. The tentatively selected plan is a new 1,200-foot long by 75-foot wide, by 15-foot deep concrete-chambered lock along with new connecting channels. The lock would be constructed immediately west and north of the existing lock.

The tentatively selected plan has been designed to avoid and minimize adverse impacts to fish and wildlife habitats through innovative project construction sequencing that largely avoids impacts to undisturbed habitats. A compensatory mitigation plan has been developed and incorporated into the project to fully compensate for unavoidable impacts.

Date: _____

Please send your comments to the District Engineer by the date stamped above. For further information, please contact Mr. Richard E. Boe, U.S. Army Engineer District (PM-RS), P.O. Box 60267, New Orleans, Louisiana 70160-0267. Telephone: (504) 862-1505. Mr. Boe's E-mail address is *richard.e.boe@mvn02.usace.army.mil*

Note: Information, displays, maps, et cetera, discussed in the Main Report and Appendixes are incorporated by reference in the Environmental Impact Statement.

1. SUMMARY

1.1. MAJOR CONCLUSIONS AND FINDINGS

1.1.1. Purpose and Need

The purpose of this study is to determine the feasibility of providing navigation and flood control improvements at the Bayou Sorrel lock in Iberville Parish, Louisiana. A reconnaissance study of all the locks on the Gulf Intracoastal Waterway (GIWW), completed in 1992, determined that the Bayou Sorrel lock had the highest average navigation delays of all locks on the GIWW (except for the Inner Harbor Navigation Canal lock, which is currently being replaced). In addition to the navigation problems at the Bayou Sorrel lock, the lock would not be able to withstand a project flood in the Atchafalaya Basin, Louisiana, project. The Bayou Sorrel lock is a feature of the Atchafalaya Basin, Louisiana, project, which in turn is a feature of the Flood Control, Mississippi River and Tributaries (MR&T) project. A project design flood is the greatest flood having a reasonable probability of occurrence. Since the lock was constructed, the Atchafalaya Basin, Louisiana, project flood flow-line has been raised. Consequently, the lock would be overtopped during a project flood.

1.1.2. Alternatives

This draft Environmental Impact Statement (EIS) evaluates two primary action alternatives and the no-action alternative, which involves continued operation of the existing lock. The first primary action alternative would provide for a floodgate to be placed in front of the existing lock to protect the lock and areas behind it from a project flood in the Atchafalaya Basin, Louisiana, project. The floodgate would provide adequate flood protection, but would not solve the problem of navigation delays at Bayou Sorrel. This alternative would be funded through at full Federal cost through the MR&T project. The second primary alternative would provide for a new lock with greater capacity than the existing lock and the ability to withstand a project flood. Secondary alternatives under this primary alternative are locks of various dimensions and construction materials. This alternative would require cost sharing with the Inland Waterway Trust Fund. Both concrete-chambered and earthen-chambered lock designs were evaluated in detail. Also, lock chamber widths of 75 and 110 feet were investigated in detail. Neither of these two factors changes the anticipated impacts of the project. Therefore, there are no separate analyses for locks with different construction techniques and chamber sizes provided in this EIS.

The alignment of a replacement lock is constrained by the position of existing waterways, the East Atchafalaya Basin Protection Levee (EABPL), and populated areas. Only one practical location for a new lock exists. The site is approximately the same location where construction had begun for the existing lock, before soil failures forced abandonment of the area. However, modern technology makes it practical to build a lock at this site. Since there is only one practical location for a new lock, other locations have not been evaluated in detail.

1.1.3. Rationale for the Tentatively Selected Plan

The tentatively selected plan calls for a 1,200-foot long by 75-foot wide, concrete chambered, sector-gated lock. The concrete-chamber design would allow for more rapid filling and emptying compared to an earthen-chambered lock. The sector-gated design has been proven appropriate for relatively low head differential locks. The tentatively selected plan has been selected because it maximizes net national economic benefits (NED) and is environmentally acceptable. A larger, 110-foot wide, concrete-chambered lock is favored by the navigation industry, but the higher cost of the 110-foot wide lock outweighs its anticipated incremental benefit.

1.1.4. Environmental Impacts

Fish and wildlife habitat impacts of the tentatively selected plan are substantial in terms of acreage, but are restricted mainly to previously impacted areas such as borrow pits, existing channels, small woodlots, levees, mowed areas, and existing dredged material disposal areas. Impacts have been avoided and minimized through a carefully designed plan for dredging connecting channels and disposing of the dredged material. Remaining impacts are mitigated through a compensatory mitigation plan that would be accomplished on the Government-owned property at the site.

1.1.5. Environmental Features

Environmental features include avoidance and minimization of potential project impacts through innovative project construction sequencing and a fish and wildlife mitigation plan to compensate for unavoidable impacts. The fish and wildlife mitigation plan includes planting available areas with desirable tree species and managing those areas to establish functional forest habitat. The mitigation plan also includes maintenance of two openings along the bank of the GIWW that allow headwater flows from the channel to enter the swamp, thereby helping to maintain water quality.

The new lock would have the ability to pass water from the Atchafalaya Basin Floodway into Lower Grand River to help alleviate water quality problems that occasionally occur during periods of low rainfall and high temperatures. The project operation plan would address this function of the lock.

1.1.6. Threatened and Endangered Species

Three species listed as threatened or endangered may occur in the project area. These species are the bald eagle, the Louisiana black bear, and the pallid sturgeon. Bald eagles occasionally forage around the existing lock site and an active nest occurs about two miles southwest of the lock. Roaming bears sometimes pass through the area, but the habitat is not considered occupied due to the lack of female bears with cubs. Pallid sturgeon have not been documented from the Bayou

Sorrel area, but the East Access Channel and GIWW may provide suitable habitat for this species.

The US Army Corps of Engineers (USACE), New Orleans District prepared biological assessments for the Louisiana black bear and the pallid sturgeon. The conclusions of those assessments are that the tentatively selected plan would not be likely to adversely affect those species. No assessment was prepared for the bald eagle since no eagle nests occur within one mile of the proposed project site. The U.S. Fish and Wildlife Service (USFWS) has reviewed these assessments and has concurred with the conclusions.

1.1.7. Executive Order 11988, Floodplain Management

Executive Order 11988 requires Federal agencies to evaluate the potential effects of their actions on floodplains and to avoid adverse floodplain impacts wherever possible. All of the Bayou Sorrel area is within the 100-year floodplain (Classification "A" and "A-1") except for the EABPL and the road embankment for Highway 75 that runs alongside Lower Grand River and the GIWW, which are Classification "C". Essentially all land areas are within the floodplain. There are no alternatives that would avoid floodplain impacts from direct construction activities. However, the tentatively selected plan would provide greater protection from a project flood than the existing lock. The plan would not increase flooding potential or change water levels in protected or non-protected areas, except for providing protection against a devastating flood. The tentatively selected plan is not expected to induce development within the floodplain. The adequacy of the existing lock to pass a project flood is not limiting development within the floodplain. Development is being limited by the low elevation of the land.

1.1.8. Executive Order 11990, Protection of Wetlands

Executive Order 11990 requires Federal agencies to take action to minimize destruction of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Nearly all of the land in the vicinity of Bayou Sorrel is considered wetland. Even some of the dredged material disposal areas used for the disposal of material dredged annually from the GIWW are technically wetlands, although their functional value is low. The tentatively selected plan has been designed to avoid adverse impacts to wetlands. No new dredged material disposal areas would be created in wetland areas. The new lock site and most of the connecting channels would be constructed mainly through previously disturbed wetlands that have low to moderate functional values. The mitigation plan, included as part of the tentatively selected plan, fully mitigates for all adverse impacts to wetland habitats.

1.1.9. Executive Order 12898, Environmental Justice

Executive Order 12898 directs Federal agencies to analyze the environmental effects, including human health, economic and social effects, of their actions on minority and low-income communities. No specific census data is available for the Bayou Sorrel community, but the

community appears to be typical of rural southern Louisiana. The community appears to have a relatively small minority population, but again, no data is available to refute or substantiate this observation. No human health, economic, or social effects are expected in the community of Bayou Sorrel except for about five residences located in the area where the new lock's tailbay channel and northern guidewall would be located. No other structures are located near the proposed lock. The five structures appear to be modest, single family residences. The structures are within an existing USACE channel easement for the GIWW and should not have been constructed at that location. The occupants of those structures would be required to relocate since the area would be need for construction of the new lock. A preliminary determination has found that the residents would not be eligible for relocation under the Uniform Relocations Assistance and Real Property Acquisition Policies Act (PL91-646) since the structures were built on land over which the Government holds a perpetual channel easement for the GIWW. The income levels and ethnic backgrounds of the occupants of these houses have not been determined.

1.1.10. Section 404(b)(1) Evaluation

A Clean Water Act, Section 404(b)(1) evaluation has been prepared and is included in the Environmental Appendix (Appendix B). The USACE has determined that on the basis of Section 404(b)(1) guidelines, the disposal of dredged material into the proposed disposal sites would comply with the requirements of the guidelines with inclusion of appropriate and practical conditions to minimize pollution and adverse effects on the aquatic ecosystem. Impacts to wetlands have been avoided and minimized to the maximum extent practicable.

1.1.11. State Water Quality Certification (Section 401)

The USACE will apply for a State Water Quality Certificate from the Louisiana Department of Environmental Quality (LDEQ) pursuant to Section 401 of the Clean Water Act during the public review period for this draft EIS. The USACE does not plan to seek an exemption to obtaining a State Water Quality Certificate as allowed by Section 404(r) of the Clean Water Act. Application for State Water Quality Certification is being made voluntarily and as a matter of comity. All criteria either have been or will be met for a Section 404(r) exemption: information on the effects of discharge of dredged material into the waters of the United States, including application of Section 404(b)(1) guidelines, are included in this EIS and this EIS will be submitted to Congress before the actual discharge takes place.

1.1.12. Consistency with the Louisiana Coastal Resources Program

The project location is about 12 miles outside of the Louisiana Coastal Zone Boundary. The project is not expected to affect the coastal zone of Louisiana in any way. Therefore, a Louisiana Coastal Resources Consistency Determination has not been prepared. As a matter of comity, the Louisiana Department of Natural Resources, Coastal Management Division will be advised of the project and their comments will be solicited and considered.

1.2. AREAS OF RESOLVED CONTROVERSY

There are no areas of controversy that have been resolved.

1.3. UNRESOLVED ISSUES

Local residents have voiced two issues that remain unresolved. Residents are concerned about the vehicular bridge at Bayou Sorrel. They fear that increased vessel traffic and larger tows on the GIWW, as a result of a new lock, would increase the frequency of barge tows hitting the bridge and putting it out of service. The second issue is bank erosion along the GIWW. Bank erosion is likely being caused by vessel wakes, prop wash from tows, and physical damage to the bank by tows waiting for entry into the lock. Most of the erosion appears to occurring along developed properties to the north of the lock. Some local residents have been complaining for years about this problem. This is mainly a property issue, not an environmental issue.

1.4. ENVIRONMENTAL COMMITMENTS AND MITIGATION PLAN

A number of commitments that would minimize and/or compensate for adverse effects to the natural environment have been included in the tentatively selected plan. These commitments are summarized in Table 1.

TABLE 1
ENVIRONMENTAL COMMITMENTS

Significant Issue or Resource	Reason for Commitment	Commitment
Bottomland hardwood forest and cypress swamp	To avoid the conversion of forest and swamp into dredged material disposal areas	All dredged material from project construction would be placed into existing borrow pits, existing dredged material disposal areas, and the existing lock's tailbay channel, forebay channel, and lock chamber.
Bottomland hardwood forest and cypress swamp	To mitigate for unavoidable losses to forest and swamp from channel construction and dredged material disposal	During project construction and during the project life, dredged material disposal areas on Government-owned property would be planted with desirable tree species, monitored, and managed to maximize their wildlife habitat value.
Cypress swamp	To mitigate for impacts to water quality (low dissolved oxygen) resulting from dredged material disposal areas blocking headwater flows into the swamp	Two water conveyance ditches would be maintained to carry headwater flows from the East Access Channel into the swamp through the existing disposal areas. Sediment traps would be excavated on the ditches as necessary to prevent the deposition of heavy grained sediments in the swamp.